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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,003	03/11/2004	Akiji Shibata	503.43552X00	3868

20457 7590 03/14/2007
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ARLINGTON, VA 22209-3873

EXAMINER

CHAMBLISS, ALONZO

ART UNIT	PAPER NUMBER
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2814

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/797,003

Applicant(s)

SHIBATA ET AL.

Examiner

Alonzo Chambliss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/7/06 has been entered.

Information Disclosure Statement

2. The IDS filed on 11/7/06 did not recite any references. Therefore, the examiner did not sign the PTO 1449.

Drawings

3. The drawings were received on 11/7/06. These drawings are approved by the examiner.

Response to Arguments

4. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanobe et al. (JP 2002-353361) in view of the Inoue et al. (JP 2002-329811).

With respect to Claims 1 and 2, Kawanobe discloses a mold die comprising a first die 7 having a recess 702 of a predetermined form and a second flat die 8. The first die 7 to be disposed on a surface of a wiring board 1 by the mold compound 5, wherein the wiring board 1 has a plurality of openings 26 including a bonding opening 1A and a semiconductor chip 4 mounted on the surface via an elastic material 301. The second die 8 is disposed on a back of the surface of the wiring board 1 on which the semiconductor chip 4 is mounted for sealing with an insulating resin 5 a periphery of the

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semiconductor chip 4 and at least bonding opening 1A of the wiring board 1 (see English translation, paragraphs 5-21; Figs. 2a, 2b, 7a, 7b, 8, 10a, and 10b). Kawanobe fails to disclose a second die comprising a protrusion disposed around an area overlapping the bonding opening to be sealed with the insulating resin. The protrusion is configured to press the wiring board toward the semiconductor chip around the area overlapping the bonding opening. However, Inoue discloses a second die 10B comprising a protrusion (i.e. the portion attached directly to the substrate 3) disposed around an area overlapping the bonding opening to be sealed with the insulating resin 4. The protrusion is configured to inherently press the wiring board 3 toward the semiconductor chip 2 around the area overlapping the bonding opening (see Figs. 1 and 3). Thus, Kawanobe and Inoue have substantially the same environment a chip attached and electrically connected to a substrate, wherein the chip is encapsulated by a mold material. Therefore, one skilled in the art would readily recognize incorporating a protrusion to the second die of Kawanobe, since the protrusion would improve the encapsulation of the bonding opening region in the substrate while reducing the mechanical stress of the semiconductor chip as taught by Inoue.

With respect to Claims 3 and 4, Kawanobe discloses wherein the wiring board has a conductive pattern 2 electrically connected to an external electrode 401 of the semiconductor chip 4 in the bonding opening (see Figs. 17, 18, and 20).

The prior art made of record and not relied upon is cited primarily to show the product of the instant invention.

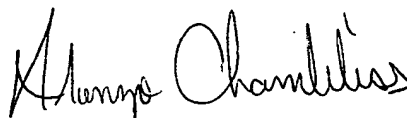
Conclusion

7. Any inquiry concerning the communication or earlier communications from the examiner should be directed to Alonzo Chambliss whose telephone number is (571) 272-1927.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-7956

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system Status information for published applications may be obtained from either Private PMR or Public PMR. Status information for unpublished applications is available through Private PMR only. For more information about the PMR system see <http://pair-dkect.uspto.gov>. Should you have questions on access to the Private PMR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or EBC_Support@uspto.gov.

AC/March 6, 2007



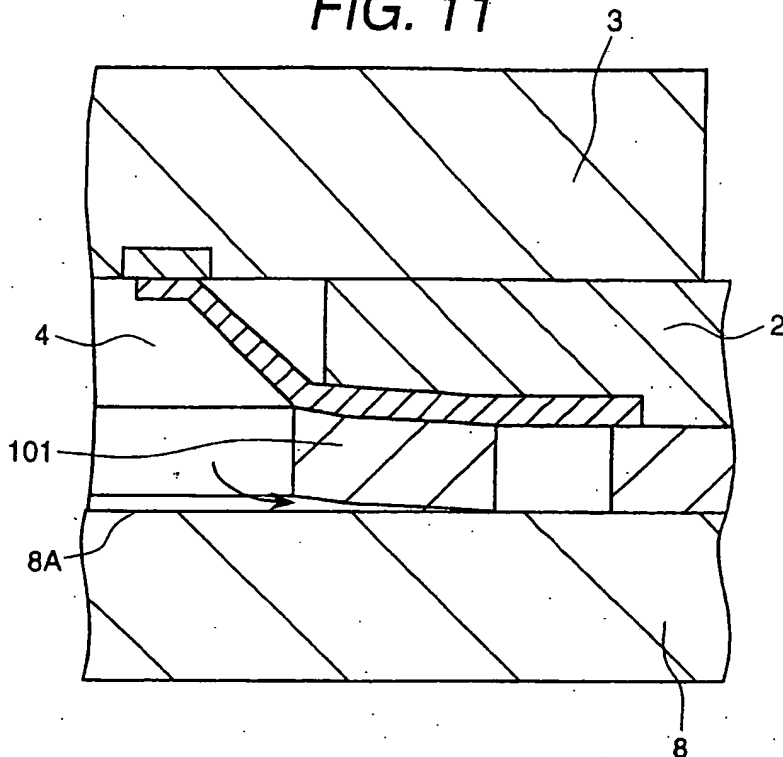
Alonzo Chambliss
Primary Patent Examiner
Art Unit 2814



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PRIOR ART

FIG. 11



Approved
 AC
 3/6/07

FIG. 12

PRIOR ART

